

**AMENDMENT AND PRESENTATION OF CLAIMS**

Please replace all prior claims in the present application with the following claims.

1. (Currently Amended) A method for testing a time delay error ratio  $ER$  of a device against a maximal allowable time delay error ratio  $ER_{limit}$  with an early pass criterion, whereby the early pass criterion is allowed to be wrong only by a ~~small~~ first probability  $D_1$ , comprising the following steps:

measuring  $ns$  time delays (TD) of the device, thereby detecting  $ne$  bad time delays, which exceed a certain time limit, of these  $ns$  time delays (TD),

estimating a likelihood distribution giving a distribution of a number  $ni$  of bad time delays in a fixed number of samples of time delays (TD) as  $PD(ni, NE)$ , wherein  $NE$  is the average number of bad time delays,

obtaining  $PD_{high}$  from  $D_1 = \int_0^{ne} PD_{high}(ni, NE_{high}) dni$ , wherein  $PD_{high}$  is the worst possible likelihood distribution containing the measured  $ne$  bad time delays with the probability  $D_1$ ,

obtaining the average number  $NE_{high}$  of bad time delays for the worst possible likelihood distribution  $PD_{high}$ ,

comparing  $NE_{high}$  with  $NE_{limit} = ER_{limit} \cdot ns$ ,

if  $NE_{limit}$  is higher than  $NE_{high}$  stopping the test and deciding that the device has early passed the test and

if  $NE_{limit}$  is smaller than  $NE_{high}$  continuing the test whereby increasing  $ns$ .

2. (Currently Amended) A method for testing a time delay error ratio  $ER$  of a device against a maximal allowable time delay error ratio  $ER_{limit}$  with an early pass criterion, whereby the early pass criterion is allowed to be wrong only by a small first probability  $D_I$  for the entire test, comprising the following steps:

measuring  $ns$  time delays (TD) of the device, thereby detecting  $ne$  bad time delays, which exceed a certain time limit, of these  $ns$  time delays (TD),

estimating a likelihood distribution giving a distribution of a number  $ni$  of bad time delays in a fixed number of samples of time delays (TD) as  $PD(ni, NE)$ , wherein  $NE$  is the average number of bad time delays,

obtaining  $PD_{high}$  from  $D_I = \int_0^{ne} PD_{high}(ni, NE_{high}) dni$ , wherein  $PD_{high}$  is the worst possible likelihood distribution containing the measured  $ne$  bad time delays with a single step wrong decision probability  $D_I$  for a preliminary error ratio  $ER$  stage, whereby using a single step wrong decision probability  $D_I$  smaller than the probability  $F_I$  for the entire test,

obtaining the average number of  $NE_{high}$  of bad time delays for the worst possible likelihood distribution  $PD_{high}$ ,

comparing  $NE_{high}$  with  $NE_{limit} = ER_{limit} \cdot ns$ ,

if  $NE_{limit}$  is higher than  $NE_{high}$  stopping the test and deciding that the device has early passed the test and

if  $NE_{limit}$  is smaller than  $NE_{high}$  continuing the test whereby increasing  $ns$ .

3. (Currently Amended) A method according to claim [[1]] 2, wherein the single step wrong decision probability  $D_I$  is in the range of  $F_I > D_I \geq 1 - (1 - F_I)^{1/ne}$ .

4. (Previously Presented) A method according to claim 1, wherein the likelihood distribution  $PD_{high}(ni, NE)$  is a Poisson distribution.

5. (Previously Presented) A method according to claim 1, wherein the likelihood distribution  $PD_{high}(ni, NE)$  is a binomial distribution.

6. (Previously Presented) A method according to claim 1, wherein, for avoiding an undefined situation for  $ne = 0$  starting the test with an artificial bad time delay  $ne = 1$ , not incrementing  $ne$  when a first error occurs.

7. (Currently Amended) A method for testing a time delay error ratio  $ER$  of a device against a maximal allowable time delay error ratio  $ER_{limit}$  with an early fail criterion, whereby the early fail criterion is allowed to be wrong only by a small first probability  $D_2$ , comprising the following steps:

measuring  $ns$  time delays (TD) of the device, thereby detecting  $ne$  bad time delays, which exceed a certain time limit, of these  $ns$  time delays (TD),

estimating a likelihood distribution giving a distribution of a number  $ni$  of bad time delays in a fixed number of samples of time delays (TD) as  $PD(ni, NE)$ , wherein  $NE$  is the average number of bad time delays,

obtaining  $PD_{low}$  from  $D_2 = \int_0^{ne} PD_{low}(ni, NE_{low}) dni$ , wherein  $PD_{low}$  is the best possible likelihood distribution containing the measured  $ne$  bad time delays with the probability  $D_2$ ,

obtaining the average number  $NE_{low}$  of bad time delays for the best possible likelihood distribution  $PD_{low}$ ,

comparing  $NE_{low}$  with  $NE_{limit} = ER_{limit} \cdot ns$ ,

if  $NE_{limit}$  is smaller than  $NE_{low}$  stopping the test and deciding that the device has early passed the test and

if  $NE_{limit}$  is higher than  $NE_{low}$  continuing the test whereby increasing  $ns$ .

8. (Currently Amended) A method for testing a time delay error ratio  $ER$  of a device against a maximal allowable time delay error ratio  $ER_{limit}$  with an early fail criterion, whereby the early fail criterion is allowed to be wrong only by a ~~small~~ first probability  $F_2$  for the entire test, comprising the following steps:

measuring  $ns$  time delays (TD) of the device, thereby detecting  $ne$  bad time delays, which exceed a certain time limit, of these  $ns$  time delays (TD),

estimating a likelihood distribution giving a distribution of a number  $ni$  of bad time delays in a fixed number of samples of time delays (TD) as  $PD(ni, NE)$ , wherein  $NE$  is the average number of bad time delays,

obtaining  $PD_{low}$  from  $D_2 = \int_{ne}^{\infty} PD_{low}(ni, NE_{low}) dni$ , wherein  $PD_{low}$  is the best possible likelihood distribution containing the measured  $ne$  bad time delays with a single step wrong decision probability  $D_2$  for a preliminary error ratio  $ER$  stage, whereby using a single step wrong decision probability  $D_2$  smaller than the probability  $F_2$  for the entire test,

obtaining the average number of  $NE_{low}$  of bad time delays for the best possible likelihood distribution  $PD_{low}$ ,

comparing  $NE_{low}$  with  $NE_{limit} = ER_{limit} \cdot ns$ ,

if  $NE_{limit}$  is smaller than  $NE_{low}$  stopping the test and deciding that the device has early passed the test and

if  $NE_{limit}$  is higher than  $NE_{low}$  continuing the test whereby increasing  $ns$ .

9. (Previously Presented) A method according to claim 8, wherein the single step wrong decision probability  $D_2$  is in the range of  $F_2 > D_2 \geq 1 - (1 - F_2)^{1/ne}$ .

10. (Previously Presented) A method according to claim 7, wherein the likelihood distribution  $PD_{low}(ni, NE)$  is a Poisson distribution.

11. (Previously Presented) A method according to claim 7, wherein the likelihood distribution  $PD_{low}(ni, NE)$  is a binomial distribution.

12. (Currently Amended) A method according to claim 7, wherein for avoiding a undefined situation for  $ne < k$ , wherein  $k$  is a ~~small~~ number of bad time delays, not stopping the test as long as  $ne$  is smaller than  $k$ .

13. (Currently Amended) A method according to claim 7, characterized by an additional early pass criterion, whereby the early pass criterion is allowed to be wrong only by a ~~small~~ first probability  $D_1$ , further comprising:

estimating a likelihood distribution giving a distribution of a number of bad time delays  $ni$  in a fixed number of samples of time delays (TD) as  $PD(ni, NE)$ , wherein  $NE$  is the average number of bad time delays,

obtaining  $PD_{high}$  from  $D_1 = \int_0^{ne} PD_{high}(ni, NE_{high}) dni$ , wherein  $PD_{high}$  is the worst possible likelihood distribution containing the measured  $ne$  bad time delays with the probability  $D_1$ ,

obtaining the average number  $NE_{high}$  of bad time delays for the worst possible likelihood distribution  $PD_{higha}$

comparing  $NE_{high}$  with  $NE_{limit} = ER_{limit} \cdot ns$ ,

if  $NE_{limit}$  is higher than  $NE_{high}$  stopping the test and deciding that the device has early passed the test and

if  $NE_{limit}$  is smaller than  $NE_{high}$  continuing the test, whereby increasing  $ns$ .

14. (Currently Amended) A method according to claim 7, characterized by an additional early pass criterion, whereby the early pass criterion is allowed to be wrong only by a small first probability  $D_1$ , further comprising:

estimating a likelihood distribution giving a distribution of the number of bad time delays  $ni$  in a fixed number of samples of time delays (TD) is  $PD(ni, NE)$ , wherein  $NE$  is the average number of bad time delays,

obtaining  $PD_{high}$  from  $D_1 = \int_0^{ne} PD_{high}(ni, NE_{high}) dni$ , wherein  $PD_{high}$  is the worst possible likelihood distribution containing the measured  $ne$  bad time delays with the probability  $D_1$ ,

obtaining the average number  $NE_{high}$  of bad time delays for the worst possible likelihood distribution  $PD_{high/2}$

comparing  $NE_{high}$  with  $NE_{limit,M} = ER_{limit} \cdot M \cdot ns$ , where  $M$  is a variable with  $M > 1$ ,

if  $NE_{limit,M}$  is higher than  $NE_{high}$  stopping the test and deciding that the device has early passed the test and

if  $NE_{limit,M}$  is smaller than  $NE_{high}$  continuing the test, whereby increasing  $ns$ .

15. (Previously Presented) A method according to claim 13, wherein the probability  $D_1$  for the wrong early pass criterion and the probability  $D_2$  for the wrong early fail criterion are equal ( $D_1 = D_2$ ).

16. (Currently Amended) A method according to claim 7, characterized by an additional early pass criterion, whereby the early pass criterion is allowed to be wrong only by a ~~small~~ first probability  $F_I$  for the entire test, further comprising:

estimating a likelihood distribution giving a distribution of the number of bad time delays  $ni$  in a fixed number of samples of time delays (TD) as  $PD(ni, NE)$ , wherein  $NE$  is the average number of bad time delays,

obtaining  $PD_{high}$  from  $D_I = \int_0^{ne} PD_{high}(ni, NE_{high}) dni$  wherein  $PD_{high}$  is the worst possible likelihood distribution containing the measured  $ne$  bad time delays with a single step wrong decision probability  $D_I$  for a preliminary error ratio  $ER$  stage, whereby using a single step wrong decision probability  $D_I$  smaller than the probability  $F_I$  for the entire test,

obtaining the average number of  $NE_{high}$  of bad time delays for the worst possible likelihood distribution  $PD_{high}$ ,

comparing  $NE_{high}$  with  $NE_{limit} = ER_{limit} \cdot ns$ ,

if  $NE_{limit}$  is higher than  $NE_{high}$  stopping the test and deciding that the device has early passed the test and

if  $NE_{limit}$  is smaller than  $NE_{high}$  continuing the test, whereby increasing  $ns$ .

17. (Currently Amended) A method according to claim 7, characterized by an additional early pass criterion, whereby the early pass criterion is allowed to be wrong only by a ~~small~~ first probability  $F_I$  for the entire test, further comprising:

estimating a likelihood distribution giving a distribution of the number of bad time delays  $ni$  in a fixed number of samples of time delays (TD) is  $PD(ni, NE)$ , wherein  $NE$  is the average number of bad time delays,

obtaining  $PD_{high}$  from  $D_I = \int_0^{ne} PD_{high}(ni, NE_{high}) dni$ , wherein  $PD_{high}$  is the worst possible likelihood distribution containing the measured  $ne$  bad time delays with a single step wrong decision probability  $D_I$  for a preliminary error ratio  $ER$  stage, whereby using a single step wrong decision probability  $D_I$  smaller than the probability  $F_I$  for the entire test,

obtaining the average number  $NE_{high}$  of bad time delays for the worst possible likelihood distribution  $PD_{high}$

comparing  $NE_{high}$  with  $NE_{limit,M} = ER_{limit} \cdot M \cdot ns$ , where  $M$  is a variable with  $M > 1$ ,

if  $NE_{limit,M}$  is higher than  $NE_{high}$  stopping the test and deciding that the device has early passed the test and

if  $NE_{limit,M}$  is smaller than  $NE_{high}$  continuing the test, whereby increasing  $ns$ .

18. (Previously Presented) A method according to claim 16, wherein the probability  $F_1$  for the wrong early pass criterion and the probability  $F_2$  for the wrong early fail criterion are equal ( $F_1 = F_2$ ).

19. (Currently Amended) A method according to claim 7, ~~wherein~~ wherein for avoiding a undefined situation for  $ne = 0$  starting the test with an artificial bad time delay  $ne = 1$  not incrementing  $ne$  when a first error occurs.

20. (Previously Presented) A digital storage medium with control signals electronically readable from the digital storage medium, which interact with a programmable computer or digital signal processor in a manner that all steps of the method according to claim 1 can be performed.



21. (Previously Presented) A computer-program-product with program-code-means stored on a machine-readable data carrier to perform all steps of claim 1, when the program is performed on a programmable computer or a digital signal processor.

22. (Currently Amended) ~~A computer program with program code means to perform all steps of claim 1, when the program is performed on a programmable computer or a digital signal processor~~ digital storage medium with control signals electronically readable from the digital storage medium, which interact with a programmable computer or digital signal processor in a manner that all steps of the method according to claim 7 can be performed.

23. (Currently Amended) ~~A computer program with program code means to perform all steps of claim 1 when the program is stored on a machine-readable data carrier~~ computer-program-product with program-code-means stored on a machine-readable data carrier to perform all steps of claim 7, when the program is performed on a programmable computer or a digital signal processor.